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**Project Based Lesson**

Grade Level: 7th-8th Grade Life Science

**The Scenario**

Understanding how our bodies work is essential to a number of things including living a healthy life style, making well-informed medical decisions, and contributing to the advancement of medicine. For that reason, everyone must possess a fundamental but deep and robust understanding of health and the human body. A number of health epidemics illustrate a lack of understanding about the human body including morbid obesity, drug abuse, and the over usage of antibiotics. We have spent the last several weeks learning about and exploring the systems and organization of the human body. Each of you has become an expert and are extremely knowledgeable about each of the body systems. Your task is to use your expertise to educate others about the human body in regards to a current health issue. You will complete this task in groups of two or three. Each group will choose one major health issue to become experts on. You will present your research and understanding of the topic to a number of groups including your classmates, the 5th grade class, and group of community members including doctors, nurses, substance abuse counselors, and nutritionists.

**The Task**

1. As a group, determine a health issue you are interested in and begin researching the topic. The health issue must be one that can be prevented by making healthy, well-informed lifestyle decisions.
2. Using Mindomo, or a similar resource, create a concept map to illustrate what your topic is, how you will present it, and what information will be included
3. Using your concept map as a guide, propose to Mrs. Peters your reason for choosing this topic and how you will go about researching and presenting the information. Mrs. Peters must approve your topic before you can move forward.
4. Begin researching your topic, using reliable resources. You may find some of the following links useful:

http://www.kidsclick.org/topheal.phpNervous and Endocrine System

<http://kidshealth.org/>

<http://www.cdc.gov/>

1. Create a presentation, describing the health issue you selected, the resulting effects of your health issue, a description of the body system or systems that will be effected by the chosen health issue and how they will be effected, and a suggestion for healthy behavior in regards to this health issue. You can use a number of presentation methods including but not limited to PowerPoint, SlideShare, Google Presentation, and Prezi.
2. You will present this to the class just as you would the other audiences. Each group will receive peer feedback as well as teacher feedback through a Google Doc. You will then be given time to make adjustments based on the feedback provided
3. Present to and teach a group of 5th graders about your health issue. This will give you another chance to practice!
4. Share your presentation with a group of community members that are involved with many of these health issues each day including doctors, nurses, substance abuse counselors, and nutritionists. Following your presentations, they will share some of their knowledge about these health topics with you and also talk a bit about what their jobs are like.

**Teacher Notes**

This activity is meant to fall at the end of an extensive unit addressing the systems of the body including the following:

* Circulatory System
* Respiratory System
* Digestive and Excretory System
* Muscle and Skeletal System
* Immune System

The scenario-based project seeks to address the issue of common health issues by applying their understanding of the body systems and their functions. The anticipated length for this activity is approximately two weeks with the addition of an extra day for the presentation to the group of community members. This may be done during the school day or outside of school hours. A sample time frame is provided below.

|  |  |
| --- | --- |
| **Day 1** | * Introduce scenario and task. * Determine groups * Begin researching topics |
| **Day 2** | * Continue researching topics * Determine topic and plant of action-propose to teacher for approval |
| **Day 3** | * Research topic |
| **Day 4** | * Research topic * Begin working on presentation |
| **Day 5** | * Work on research and presentations |
| **Day 6** | * Work on research and presentations |
| **Day 7** | * Present to class |
| **Day8** | * Present to class |
| **Day 9** | * Present to 5th Graders |
| **Day 10** | * Present to 5th Graders |
| **Final Presentation Event with Relevant Community Members** | |

**TPACK Lesson Plan**

* Learning Goals
  + Iowa Core Standards and Benchmarks
    - Scientific Investigation: Think critically and logically to make the relationships between evidence and explanations.
    - Scientific Investigation: Communicate and defend procedures and explanations.
    - Life Science: Understand and apply knowledge of the basic components and functions of cells, tissues, organs, and organ systems.
    - Life Science: Understand and apply knowledge of the functions and interconnections of the major human body systems including the breakdown in structure or function that disease causes.
  + Student Goals Promoted
    - Deep and robust understanding of the content
    - Exhibit an appreciate of science
    - Demonstrate curiosity about the natural world
    - Effective communication
    - Critical and Creative Thinking
    - Making informed decision
    - Effective collaboration
* 8 Pedagogical Decisions

1. Student Centered
2. Divergent thinking in terms of creativity and wide range of methods
3. Requires extensive prior knowledge and experience as this is a project summarizing their knowledge from a whole unit
4. Requires deep knowledge and understanding in order to synthesize and present their understanding in a way that is easily understood by a younger age group
5. Intermediate duration, taking a week to two weeks to complete and present
6. Structured in terms of goals and outcomes but less structured in terms of illustrating their understanding
7. Groups of 3 to 4, depending on the class size
8. Multiple additional resources required

* Selection of Activity Types
  + Discussion: whole class discussion of the importance of understanding the systems of the body and their functions. This discussion would include extensive questioning and the use of whiteboards.
  + Brainstorming and Concept Mapping: small group work during which students brainstorm idea for topics and begin their research. They will create a concept map to illustrate their plan of action.
  + Research: Small group work during which students work together to research their topic and plan their presentation using appropriate search engines and resources
  + Presentation: Collaborative group work to create a presentation using presentation software such as Google Presentation, PowerPoint, and Prezi.
  + Peer Feedback: Individual students provide feedback to groups via a platform such as Google Forms
* Assessment Strategies
  + Prior to this activity, extensive formative and summative assessment would have been included to determine student understanding of body systems
  + Formative assessment will be used during this project in the form of questioning in order to assess the students understanding of the content as well as their understanding of task.
  + This project serves as the overall summative assessment for this unit, as it assess the students’ ability to work with and apply their knowledge of body systems. Sample standards-based rubrics are provided below. Each rubric is based on the corresponding Iowa Core Curriculum standard.

|  |  |  |  |
| --- | --- | --- | --- |
| Think critically and logically to make the relationships between evidence and explanations | | | |
| Beginning | Approaching | Meeting | Exceeding |
| 1 | 2 | 3 | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| Communicate and defend procedures and explanations. | | | |
| Beginning | Approaching | Meeting | Exceeding |
| 1 | 2 | 3 | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| Understand and apply knowledge of the basic components and functions of cells, tissues, organs, and organ systems. | | | |
| Beginning | Approaching | Meeting | Exceeding |
| 1 | 2 | 3 | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| Understand and apply knowledge of the functions and interconnections of the major human body systems including the breakdown in structure or function that disease causes. | | | |
| Beginning | Approaching | Meeting | Exceeding |
| 1 | 2 | 3 | 4 |

* Selection of Tool/Resources
  + A number of appropriate tools and resources have been mentioned throughout this project including concept mapping, presentation, research, and collaborative tools. Examples of such tool include:
    - Google Docs
    - Mindomo
    - Prezi
    - PowerPoint
    - KidsClick
    - SlideShare
    - Google Form